

WE CLAIM:

1. A solenoid actuated pneumatic valve assembly comprising:
a valve body having a pressurized air supply inlet port in fluid communication with a source of pressurized air, an outlet port adapted to be in fluid communication with at least one active pneumatically operated device, and a pass-through passage adapted to be in fluid communication with and provide a pass-through of the supply of pressurized air to the inlet port of another valve assembly such that said valves are mounted in series with respect to the supply of pressurized air; and

a latching assembly supported upon said valve body adapted to engage and be operatively retained within an aperture in a mounting plate.

2. A solenoid actuated pneumatic valve assembly as set forth in claim 1 wherein said latching assembly extends away from said valve body and has a first flanged lip extending laterally outward from said valve body and a second flanged lip disposed opposite to said first flanged lip also extending laterally outward from said valve body, said first flanged lip defining a first mounting channel adapted to accept and retain one side of an aperture in the mounting plate, said second flanged lip defining a second mounting channel adapted to accept the opposite side of the mounting plate aperture, said flanged lips extend beyond the edges of the mounting plate aperture and affix said valve body to the mounting plate.

3. A solenoid actuated pneumatic valve assembly as set forth in claim 2 wherein said latching assembly further includes a biasing bore formed within the latching assembly, said biasing bore having an open end proximate to said second flanged lip and a closed end proximate to said first

flanged lip, a biasing latch member retained at said closed end of said biasing bore while allowing the opposite end of said biasing latch member to extend beyond said second mounting channel to the edge of said second flanged lip such that when said valve assembly is installed in the mounting plate, said biasing latch member is adapted to provide a biasing force between the edge of the mounting plate aperture at said second mounting channel and said closed end of said biasing bore thereby forcing said first mounting channel of said latching assembly against the edge of the mounting plate aperture to retain said valve assembly without fasteners.

4. A solenoid actuated pneumatic valve assembly as set forth in claim 3 whereas said biasing latch member is a coiled spring.

5. A solenoid actuated pneumatic valve assembly as set forth in claim 4 wherein said latching assembly is an integrally formed portion of said valve body that extends away and is spaced apart from said valve body.

6. A solenoid actuated pneumatic valve assembly as set forth in claim 1 wherein said valve body further includes a valve bore extending axially within said valve body and a valve member movable between predetermined positions within said valve bore to selectively direct a flow of pressurized air from said inlet port through said valve bore to said outlet port.

7. A solenoid actuated pneumatic valve assembly as set forth in claim 6 wherein said valve member further includes at least one valve element disposed upon said valve member, said at least one valve element having a valve sealing surface.

8. A solenoid actuated pneumatic valve assembly as set forth in claim 7 wherein at least one valve seat is defined in said valve bore and is adapted to provide a sealing contact with said valve sealing surface of said valve element when said valve member is in a closed position thereby interrupting said flow of pressurized air.

9. A solenoid actuated pneumatic valve assembly as set forth in claim 8 wherein said valve bore is further defined as having an open end and a closed end, said valve assembly further includes a biasing member operatively disposed within said valve bore and adapted to provide a biasing force between said closed end of said valve bore and one end of said valve member, such that said valve member is operatively biased in one direction.

10. A solenoid actuated pneumatic valve assembly as set forth in claim 9 wherein said valve assembly further includes a solenoid assembly mounted upon said valve body at said open end of said valve bore opposite said biasing member, said solenoid assembly adapted to selectively actuate said valve member between predetermined positions within said valve bore in a direction opposite to said biasing force of said biasing member to direct the flow of pressurized air within the valve body.

11. A solenoid actuated pneumatic valve assembly as set forth in claim 10 further including at least one exhaust port disposed within said valve body in fluid communication with said valve bore such that said valve element is further operable to selectively direct a flow of pressurized air from said outlet port through said valve bore to said at least one exhaust port.

12. A solenoid actuated pneumatic valve assembly comprising:

a valve body having a pressurized air supply inlet port in fluid communication with a source of pressurized air, an outlet port adapted to be in fluid communication with at least one active pneumatically operated device, and a pass-through port adapted to be in fluid communication with and provide a pass-through of the supply of pressurized air to the inlet port of at least one other valve assembly mounted in series with respect to the supply of pressurized air; and

a latching assembly that extends away from said valve body and has a first flanged lip extending laterally outward from said valve body and a second flanged lip disposed opposite to said first flanged lip also extending laterally outward from said valve body, said first flanged lip defining a first mounting channel adapted to accept and retain one side of an aperture in the mounting plate, said second flanged lip defining a second mounting channel adapted to accept the opposite side of the mounting plate aperture, said flanged lips extend beyond the edges of the mounting plate aperture to mount said valve body to the mounting plate.

13. A solenoid actuated pneumatic valve assembly as set forth in claim 12 wherein said latching assembly further includes a biasing bore formed within the latching assembly, said biasing bore having an open end proximate to said second flanged lip and a closed end proximate to said first flanged lip, a biasing latch member retained at said closed end of said biasing bore while allowing the opposite end of said biasing latch member to extend beyond said second mounting channel to the edge of said second flanged lip such that when said valve assembly is installed in the mounting plate, said biasing latch member is adapted to provide a biasing force between the edge of the mounting plate aperture at said second mounting channel and said closed end of said biasing bore thereby

forcing said latching assembly against the edge of the mounting plate aperture at said first mounting channel to retain said valve assembly.

14. A solenoid actuated pneumatic valve assembly as set forth in claim 13 wherein said latching assembly is an integrally formed portion of said valve body that extends away and is spaced apart from said valve body.

15. A solenoid actuated pneumatic valve assembly as set forth in claim 14 wherein said valve body further includes a valve bore defined within said valve body and a valve member movable between predetermined positions within said valve bore to selectively direct a flow of pressurized air from said inlet port through said valve bore to said outlet port.

16. A solenoid actuated pneumatic valve assembly as set forth in claim 15 wherein said valve member further includes at least one valve element disposed upon said valve member, said at least one valve element having a valve sealing surface.

17. A solenoid actuated pneumatic valve assembly as set forth in claim 16 wherein at least one valve seat is defined in said valve bore and is adapted to provide a sealing contact with said valve sealing surface of said valve element when said valve member is in a closed position thereby interrupting said flow of pressurized air through said valve bore.

18. A solenoid actuated pneumatic valve assembly as set forth in claim 17 wherein said valve bore is further includes an open end and a closed end, said valve assembly further includes a

biasing member operatively disposed within said valve bore and adapted to provide a biasing force between said closed end of said valve bore and one end of said valve member, such that said valve member is operatively biased in one direction.

19. A solenoid actuated pneumatic valve assembly as set forth in claim 18 further including at least one exhaust port defined within said valve body in fluid communication with said valve bore such that said valve element is operable to selectively direct a flow of pressurized air from said outlet port through said valve bore to said at least one exhaust port.

20. A solenoid actuated pneumatic valve assembly comprising:

a valve body having a pressurized air supply inlet port in fluid communication with a source of pressurized air, an outlet port adapted to be in fluid communication with at least one active pneumatically operated device, and a pass-through port adapted to be in fluid communication with and provide a pass-through of the supply of pressurized air to the inlet port of at least one other valve assembly, such that said valves are operatively in series with respect to the supply of pressurized air;

a valve bore extending axially within said valve body and a valve member movable between predetermined positions within said valve bore adapted to selectively direct a flow of pressurized air from said inlet port through said valve bore to said outlet port;

a solenoid assembly mounted upon said valve body adapted to selectively actuate said valve member between predetermined positions within said valve to direct the flow of pressurized air within the valve body; and

a latching assembly integrally formed with said valve body extending away from said valve body and generally having the same shape as an aperture in an associated mounting plate, said

latching assembly further having a first flanged lip protruding laterally outward from said integral extending portion of said valve body opposite to a second flanged lip and a biasing latch member, said first flanged lip defines a first mounting channel adapted to accept and retain one side of the aperture in the mounting plate, said second flanged lip defining a second mounting channel adapted to accept the opposite side of the mounting plate aperture, said biasing latch member disposed within said latching assembly and providing a biasing force to retain said latching assembly within the aperture of the mounting plate.